

**EOSDIS IV&V
Monthly Status Report
For the Period 10/1/96 to 10/31/96
(Deliverable 0201D.2)**

November 15, 1996

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1. PERFORMANCE INFORMATION

1.1 Contract Organization Chart

Exhibit 1-1 illustrates the current organizational structure of the EOSDIS IV&V team. The approximate number of personnel assigned to each technical task is also indicated.

1.2 Programmatic Information

a) Key Recent Accomplishments

- Participated in IV&V Findings Meeting with ESDIS Management on 10/22/96. Discussed the risk to Release B due to incomplete Release A design, the instability of requirements to test case mappings, and the lack of consistent development processes.
- Initiated the first bi-weekly e-mail to ESDIS management highlighting key ECS development issues that warrant close monitoring.
- Ensured on-time delivery of contract deliverables as indicated in Exhibit 1-2.
- Continued on-going training of contract personnel. Training in October included attending a Client/Server Security Risks seminar sponsored by AXENT Technologies; participating in self-paced tutorials at the Goddard Learning Center in Windows 95 and UNIX; completing system administrator course work for Certified Novell Administrator (CNA) certification; and completing CNE courses in Network Design and Implementation as well as Network Service and Support.

b) Planned Activities

- Continue supporting NASA initiative to move toward Performance Based Contracting (PBC) by participating in regular ESDIS-Intermetrics planning sessions, the first of which is scheduled for 11/5/96.
- Begin providing inputs for new task SOWs for the period 1/1/97 through 9/30/97. Plan is to consolidate Tasks 1 and 2 into a single task (called Program Management and Operations) and to distribute the work currently associated with Task 4 (Tools and Infrastructure) across Tasks 1, 8 and 11.
- Provide accommodations for several CSC personnel at the Greenbelt facility so that they can become more integrated with EGS I&T activities.

Exhibit 1-1: Org Chart (Landscape)

*EOSDIS IV&V Monthly Status Report
For the Period 10/1/96 to 10/31/96*

Expected Date Due	Dependency	Milestone/Deliverable	Task #	Status*	Comments
10/15/96		EGS I&T Program Test Packages (Review)	11	C	Submitted on time.
10/15/96		EGS I&T Joint Test Packages (for AM-1, Initial)	11	C	Submitted on time.
10/18/96		CCM Enhanced System Prototype (Sun)	7	C	Submitted on time.
10/22/96		Bi-weekly E-mail Issues Summary	1	C	Submitted on time.
10/31/96		ICWG Open Interface Issues Summary Report	8	C	Submitted ahead of schedule on 10/29/96.
11/1/96		EGS I&T Program Test Matrix (Initial)	11	C	Submitted on time.
11/4/96		Bi-weekly E-mail Issues Summary	1	C	Submitted on time.
11/8/96		Release B Data Server Evaluation Strategy Briefing	8	C	Submitted on time.
11/15/96		ISE Confidence Test Program Electronic File cabinet Version 1.0	4	IP	
11/15/96		ECS Release A Test Witness Plan (Preliminary)	8	IP	
11/15/96		EGS I&T Program Test Packages (Baseline)	11	IP	
11/25/96		CARA on Release B External Interfaces	8	IP	
11/26/96		RTM Analysis TAM (Quantitative Assessment)	8	IP	
11/29/96		TAMs on Interface Documents	8	O	
11/29/96		ICWG Open Interface Issues Summary Report	8	O	
11/29/96		EGS Integration Test Tool Demonstration	11	O	

* C = Completed, IP = In Process, O = Open, D = Delayed, CX = Canceled

EXHIBIT 1-2: Status of Milestones/Deliverables

- Continue training activities including Tivoli System Administrator training (11/4 - 11/6), Tivoli Overview Training (12/9 - 12/11), Rational ROSE/C++ training (11/21 - 11/22), and user/system administrator training in Windows 95.

1.3 Technical Task Information

Task # 4: IV&V Infrastructure and Tool Development

a) Task Accomplishments

- Completed developing the Confidence Test Program Electronic File Cabinet (CTP-EFC) prototype. Currently populating the CTP-EFC and addressing feedback issues.
- Completed developing the CTP-EFC Library Maintenance Utility. This utility permits posting of Word documents, schedules, and presentations to a test package document library. Currently, 35 confidence test packages are defined.
- Posted all updated Confidence Test Package 10/15 baseline documents in the EGS I&T document library.
- Released Test Management Database (TMDB) Version 3.6. This version contains a number of M&O changes pertaining to functional thread and test case tracking, as well as test procedure facilitation.
- Installed EDOS RTM export file that was received from CSC on 10/14/96. This RTM baseline included criticality assignments for Level 3 requirements. Requirement classes were also categorized as Level 3, IRD, and security.
- Transferred the EDOS RTM requirements to the ISE requirements table so that TMDB users could effectively allocate EDOS requirements to I&T test packages and cases. This involved modifying the existing RTM-to-ISE data transfer utility.
- Installed, configured, and implemented new SMTP gateway software. The installed software will decode MIME attachments automatically, allowing a more reliable e-mail interface between IV&V and NASA.

b) Issues/Concerns

- None.

c) Subcontractor Performance

- EWA performance has been very good. Specific activities included maintaining, operating, and enhancing the Test Management Database (TMDB).

d) Planned Activities

- Baseline and release the CTP-EFC (Version 1.0). Also, demonstrate the CTP-EFC to EGS I&T Test Manager at GSFC on 11/20/96. (TMDB may also be demonstrated.)
- Create a derivative of the TMDB to support the IV&V test witnessing activity under Task 8.
- Provide a mechanism to generate EOSDIS sibling requirements for inclusion in the TMDB requirements table.
- Implement a cc:Mail polling mechanism between Greenbelt, MD and Fairmont, WV.
- Install additional memory into select workstations and X-terminals in order to better support the tools used on the EOSDIS program.
- Complete Windows 95 installation for Greenbelt users.
- Perform data entry on the EOSDIS IV&V and EGS I&T homepages.
- Continue support (refinement, development, and maintenance) for the ARDB, PITS, and TMDB client/server tools.
- Support program meetings and briefings as required.

Task # 7: Programmatic and Process Analysis

a) Task Accomplishments

- Delivered Enhanced System Prototype for the Sun to Dr. Barkstrom on 10/18/96. This delivery contained an enhanced GUI, newly implemented and modified databases, a mini-model to allow beginning-to-end experimentation, and model output files in ASCII and HDF format. The delivery also included release notes and a user manual.
- Received Chapter V.2 from Dr. Barkstrom, entitled "Measurement Sets and Earth Measurement Types." Began analyzing its content for model implementation.
- Continuing to evaluate the use of ObjectAda (Ada 95) instead of Ada 83 as the development language for the Windows NT version of the CCM. This language transition is expected to reduce the complexity of the interface between Teleuse (GUI builder) and the Ada code.

b) Issues/Concerns

- The development team needs additional source documentation to remain productive.

c) Subcontractor Performance

- Not Applicable.

d) Planned Activities

- Develop and refine Windows NT version of the Enhanced System Prototype.
- Continue working on CCM Hardware Model based on availability of source documentation.
- Revise and enhance CCM user documentation.
- Participate in seminar-demo of CCM Hardware Model to be held at both Langley and Goddard once a functioning model is available.
- Participate in next CCM Executive Panel Meeting, when scheduled.
- Support other program meetings and briefings as required.

Task # 8: Development Life Cycle Analysis

a) Task Accomplishments

General:

- Developed overall task structure, including the charters for the following five Integrated Analysis Teams (IATs): Planning and Rapid Analysis (PRA), System and Interfaces Analysis (SIA), System Modeling Analysis (SMA), System Security Analysis (SSA), and Test Analysis and Witnessing (TAW).

Planning and Rapid Analysis Team:

- Prepared and delivered a Monthly Metrics Report for ECS development activities for October. This report represents metrics generated under former Tasks 5 and 6.
- Developed a methodology to conduct a CARA for ECS Release B Interfaces.
- Downloaded Rational Rose software from Rational server and obtained 30-day demonstration license. Coordinated Rational Rose demo with technical consultants supporting ECS development team.

System and Interfaces Analysis Team:

- Conducted Release B RBR criticality analysis. Prepared and delivered TAM documenting findings.
- Initiated planning for two deliverables associated with analysis of 11/11/96 version of RTM. Also, initiated planning for deliverable associated with analysis of ASTER interface.
- Participated in ICWG meetings and provided IV&V review comments on interface documents.
- Attended the 5th ASTER Ground System Interface meeting. Attended sessions on ECS-ASTER ICD, FOS interfaces, and SDPF IMS.
- Input new issues as well as revised issue statuses into PITS-ICWG repository. Delivered full issue summary report and metrics on 10/8 at ICWG status meeting. Also provided update on 10/29.
- Revised informal draft of ECS-SCF ICD CCR and submitted comments to ECS author.
- Prepared and submitted Impact Analysis Reports for the following CCRs:

505-01-35-062	Baseline EDOS TGT ICD
505-41-47-001	Baseline SAGE III MOC/ECS ICD
505-01-41-124	Update Support Document Formats
505-01-41-125	Need to Serve Documents to the Users
505-01-31-004	Baseline the SSIM-EOC ICD

- Started analyzing the following CCRs:

505-01-35-063	Level 2 Changes due to Reshape
505-41-19-003	Remove TBDs & incorporate comments into the NOAA IRD
505-41-36-003	Remove TBDs & incorporate comments into the NOAA ICD
505-01-41-123	Revise ECS I&T CDRL Delivery Schedule and DID Descriptions
505-41-17-002	Correct Inconsistencies Between the NSI IRD and ICD
505-41-40-002	Remove TBDs and make Appropriate Changes to the Polling with Delivery Record (PDR) Section

System Modeling Analysis Team:

- Supported Chris Daly on BONEs/ECS modeling regarding 2/5-minute response time issues.
- Handed off modeling task from subcontractor to Intermetrics. New modeling lead is currently reviewing documentation from ECS subcontractor, previous IV&V

personnel, other NASA modeling efforts and relevant Internet modeling and simulation materials to come up to speed on the overall modeling support effort.

- Reviewed BONEs maintenance agreement to ensure that Intermetrics version of BONEs is both consistent with the ECS contractor's version, as well as optimally configured for our hardware. Wrote a proposal to acquire BONEs Project Editor to facilitate model review and experimentation.
- Started IV&V Internet Web page for modeling and simulation issues with intention of fostering better communication among various EOS modeling teams.

System Security Analysis Team:

- Participated in EOSDIS Security Working Group (ESWG) on 10/15/96 and presented issues associated with recently distributed TAM on EOSDIS Security Policies and Plans (dated 9/30/96).
- Conducted a quick review of EBNet security documentation (i.e., Security Plan, Risk Management Plan, and ST&T Plan), verifying that EBNet is adequately addressing the security domain.
- Began working with the Test Analysis and Witnessing (TAW) IAT to identify methods and activities needed for witnessing ECS developer I&T tests for Release A SCDO, scheduled for December.
- Began working with CSC to further develop the EOSDIS Security Requirements to Test Cases Matrix.
- Participated in planning meeting with Task 11 personnel on the EGS7 Security Test Package which will be used to support EGS I&T in later months.
- Attended Mitre prototype demonstration on 10/22/96 which highlighted Remedy as a potentially secure trouble ticketing system for enterprise-wide management.

Test Analysis and Witnessing Team:

- Attended daily ECS I&T status briefings at GSFC.
- Met with Glenn Iona, Darryl Lakins, and Ted Hammer to discuss and coordinate upcoming ECS Release A test analysis activities.
- Began developing IV&V Test Witnessing Plan and Test Witnessing Report format.

b) Issues/Concerns

- Lack of a current ECS design is impacting execution of IV&V design analysis activities specified in the Task 8 SOW (e.g., Data Server Design Analysis, ASTER Interface Design Analysis).
- A definition of the ECS Release A test process, including a firm and detailed I&T and AT schedule, and updated test procedures are needed from the ECS developer, so that IV&V can plan and execute test witnessing activities and subsequent SI&T activities.
- The BONEs model has had no new development since the spring. The end-to-end analytical model has been implemented in code but has not been verified or validated. The CAP model has also not been utilized.
- IV&V has limited visibility into the status of interface definitions. This has resulted in the reporting of data that was not current. To avoid this problem in the future, we recommend that we either become an observer to the interface definition process or receive summaries of new issues as they are identified.

c) Subcontractor Performance

- CTA is leading the SIA Team. Their technical staff also supports other integrated analysis teams within Task 8. Their performance has been very good.
- SES is leading the TAW Team. Their technical staff also supports other integrated analysis teams within Task 8. Their performance has been very good.

d) Planned Activities

Planning and Rapid Analysis Team:

- Develop and deliver November Monthly Metrics Report.
- Conduct and complete CARA for Release B external Interfaces.

System and Interfaces Analysis Team:

- Complete impact analysis for CCRs 505-01-35-063, 505-41-19-003, 505-41-36-003, 505-01-41-123, 505-41-40-002 and other CCRs which are received during November.
- Complete planning and begin analysis activities for the ASTER Interface TAM.

- Complete planning and perform quantitative analysis of 11/11 RTM. Deliver quantitative analysis results in Monthly Metrics Report.
- Start qualitative analysis of 11/11 RTM.
- Continue data entry into PITS ICWG repository, and present at next ICWG status meeting on 11/12.

System Modeling Analysis Team:

- Identify Web server to house IV&V Modeling and Simulation Web Page.
- Continue review of previous IV&V work in the area of modeling and simulation.
- Review ECS modeling and simulation plans and procedures.
- Begin reviewing ECS contractor models, including CAP, End-to-End model, and BONEs dynamic simulation.

System Security Analysis Team:

- Write security TAM on Release A CSMS test case criticality issues.
- In conjunction with the TAW-IAT, identify security-related test cases to witness during developer Release A SCDO I&T, and write Release A Test Witnessing Plan.
- Review EGS7 Security Test Package to ensure that all security requirements are adequately addressed.
- Continue updating EOSDIS Security Requirements to Test Cases Matrix.
- Evaluate SATAN and ISS network tools to gain an enhanced understanding of their usefulness in the EOSDIS environment.
- Work to resolve outstanding security Technical Issue Memoranda (TIMs).

Test Analysis and Witnessing Team:

- Develop a Test Witnessing Plan, Test Witnessing Report format, and test procedure analysis methodology.
- Analyze the mapping of mission critical RBRs into mission critical test cases for Release A.
- Continue attending ECS I&T status briefings and EOSDIS test coordination meetings.
- Begin reviewing updated ECS Release A test procedures and requirements to test case mappings (pending RTM and test procedures updates).

Task # 11: EOS Ground System Integration and Test

a) Task Accomplishments

General:

- Generated EGS I&T Metrics Briefing (See Appendix A).

EGS Version 1 Test Planning:

- Supported the completion of ECS/TSDIS message exchange testing.
- Provided plan for ECS test witnessing.

Integration Schedule Tracking and Analysis:

- Revised Level 4 I&T schedule based on ECS Release A replan.
- Provided “what-if” priority analysis on Science test packages.

Integration Test Tool Definition and Plans:

- Supported ETS testing.
- Continued coordinating the implementation of the Test Management Data Base (TMDB) prototype for CTPs.

EGS Confidence Test Planning:

- Supported I&T Integrated Product Team and TICTOC activities.
- Delivered updated Confidence Test Packages as scheduled on 10/15/96.
- Participated with the ESDIS Test Data Set Working Group.
- Completed EDOS requirements transfer with the support of Task 4 personnel.

b) Issues/Concerns

- We need hands-on access to the ECS SCDO system, documents, and training in order to achieve the compressed schedule objective (i.e., originally 8 months, now compressed to 5). To date, Hughes has been reluctant to allow this.
- We need a clear definition from Hughes on the scope of the upcoming ECS releases in order to complete our EGS I&T replanning. We are particularly concerned with the impact of configuration changes (both within A, as well as from A to B) on

regression testing. We are also concerned with the content of B0 vs B1 for version 2 test planning.

- The results of TSDIS-ECS testing indicate that the developer did not sufficiently complete unit testing before beginning interface tests. This reinforces a concern that component level testing, including the testing of Mission Critical requirements, may not be sufficiently complete when EGS I&T receives the system(s) for certification test. Impacts to schedule and/or the quality of the delivered system could result, given that we have streamlined the test process so as not to duplicate scope.
- We need to continue developing relationships with our joint test partners. This is especially important when trying to schedule resources.

c) Subcontractor Performance

- Subcontractor performance has been very good.

d) Planned Activities

- Complete updated Confidence Test Package delivery due on 11/15/96.
- Begin external test environment scheduling for both EGS I&T preparation and formal test execution.
- Complete FOS CTP readiness reviews.
- Update Science CTPs with procedure information based on ECS-TSDIS test review.
- Implement formal TMDB test package baseline, including metrics reporting.
- Support TICTOC and other program briefings/meetings as required.

2. FINANCIAL/CONTRACTUAL INFORMATION

**This Section
Has Been Removed
Due to Proprietary Content.**

Appendix A

EGS Integration and Test Metrics Briefing